Differences in treatment of stage I colorectal cancers: a population-based study of colorectal cancers detected within and outside screening

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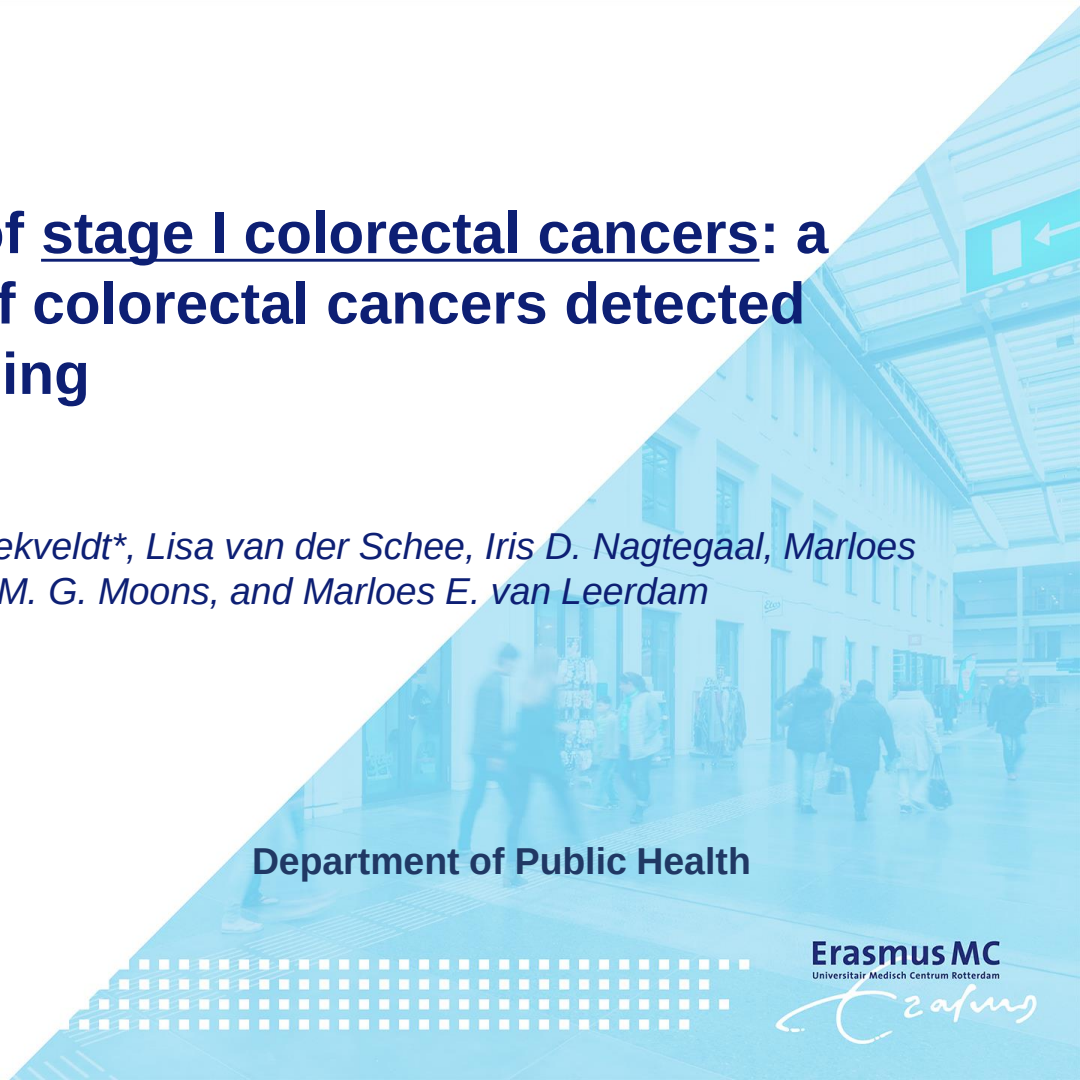
**shared first authorship*

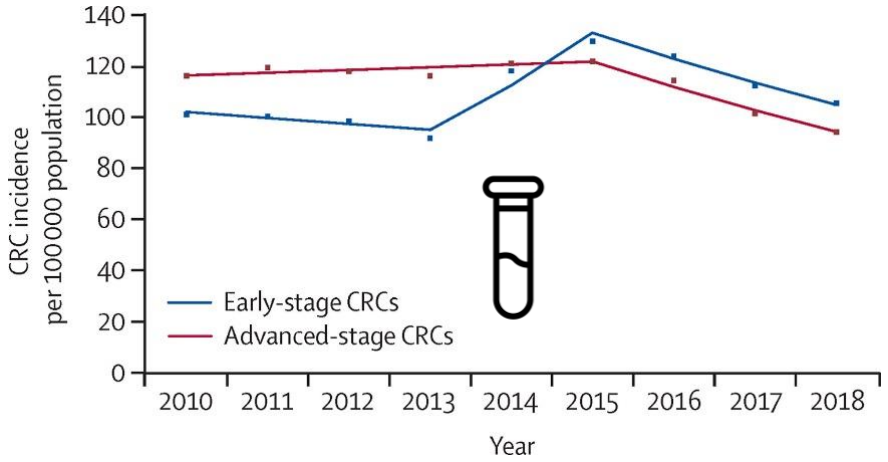


Department of Public Health

Erasmus MC
Universitair Medisch Centrum Rotterdam

Effectiveness of the colorectal cancer (CRC) screening program in the Netherlands:

1) Shift towards detecting more early stage CRC



Breekveldt, Eur J Cancer, 2022

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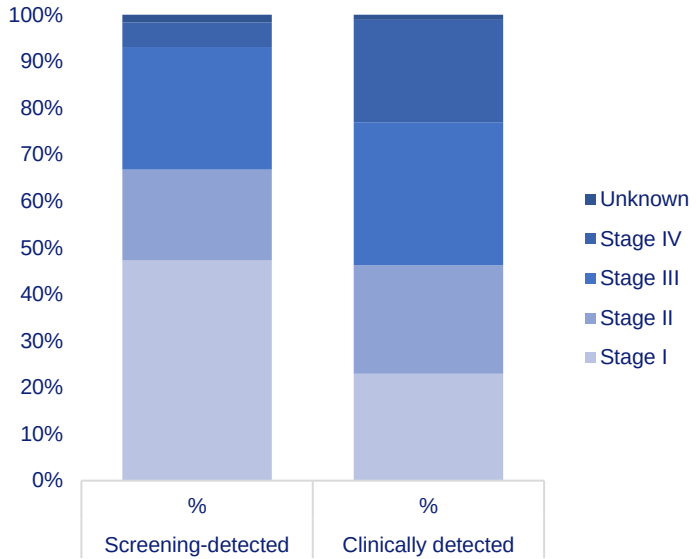
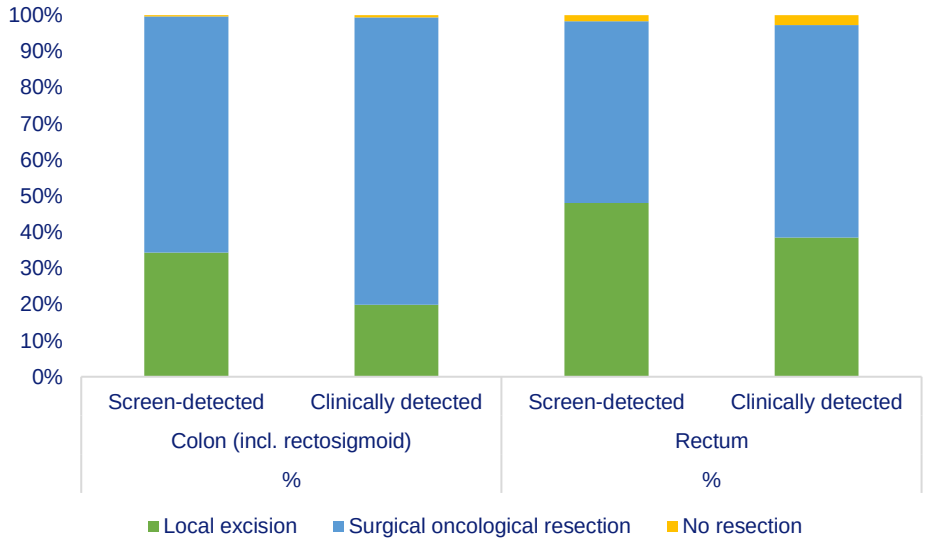


Breekveldt, Lancet Gastroenterol Hepatol, 2022

Effectiveness of the CRC screening program in the Netherlands:

1) Shift towards detecting more early stage CRC
2) More local excisions in screen-detected than clinically detected stage I CRCs



Breekveldt, Lancet Gastroenterol Hepatol, 2022

1) To describe the treatment of stage I CRCs detected within and outside the CRC screening program
2) To determine to what extent patient and tumor characteristics explain the different in treatment of patients with stage I CRC

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All stage I CRCs diagnosed between 2008 and 2020 in the Netherlands (n=22,433)

1) Comparison of patient, tumor and treatment characteristics of screen-detected versus non-screen-detected stage I CRCs
2) Join-point regression analyses to evaluate changes in treatment of T1 CRC.
3) Multivariable logistic regression between treatment* and patient and tumor characteristics, stratified by T-stage and tumor location

** Treatment was defined as either local excision only or surgical oncologic resection*

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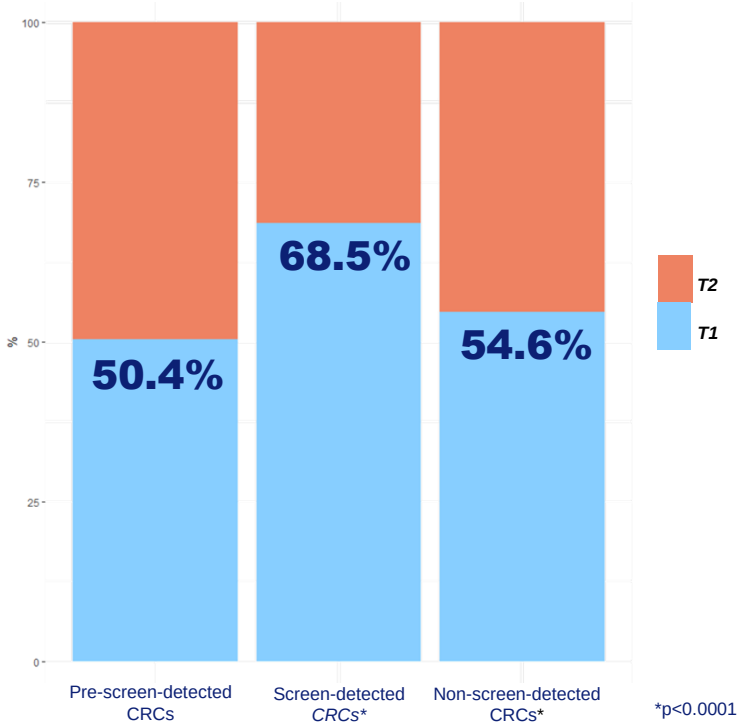
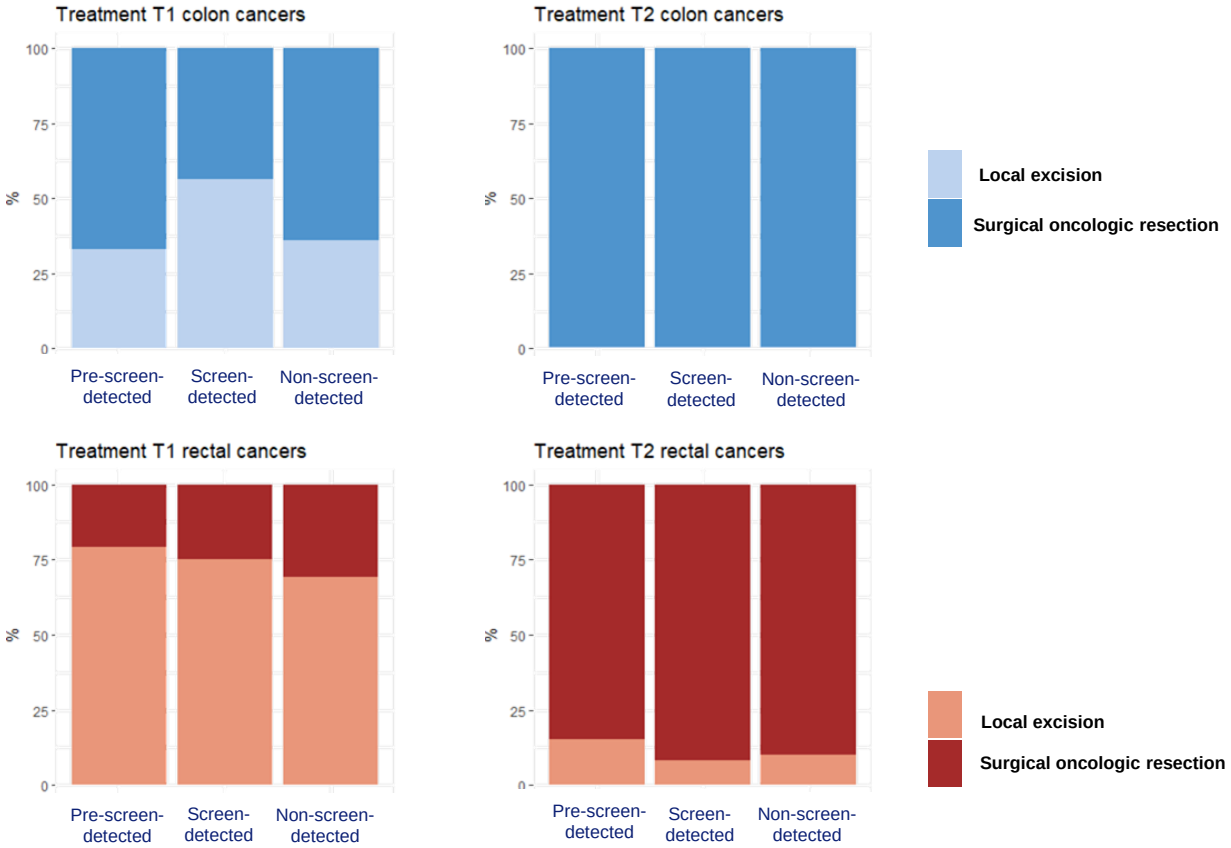
T stage distribution in colorectal cancers



Treatment by T stage



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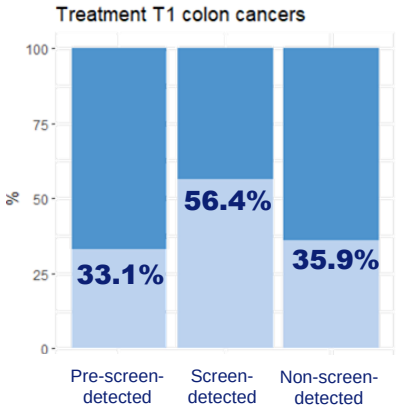

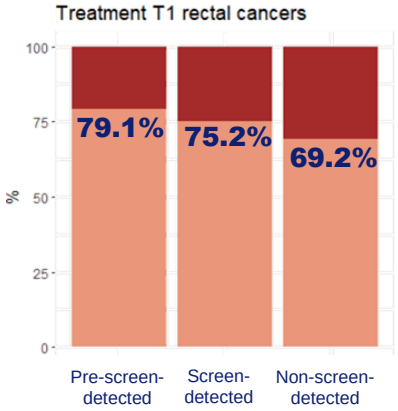

Local excision

Surgical oncologic resection

Local excision

Surgical oncologic resection

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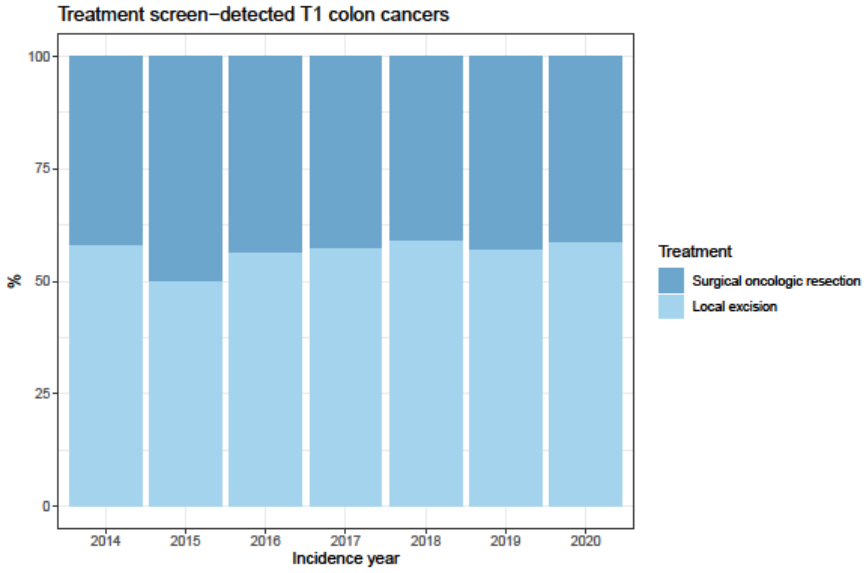
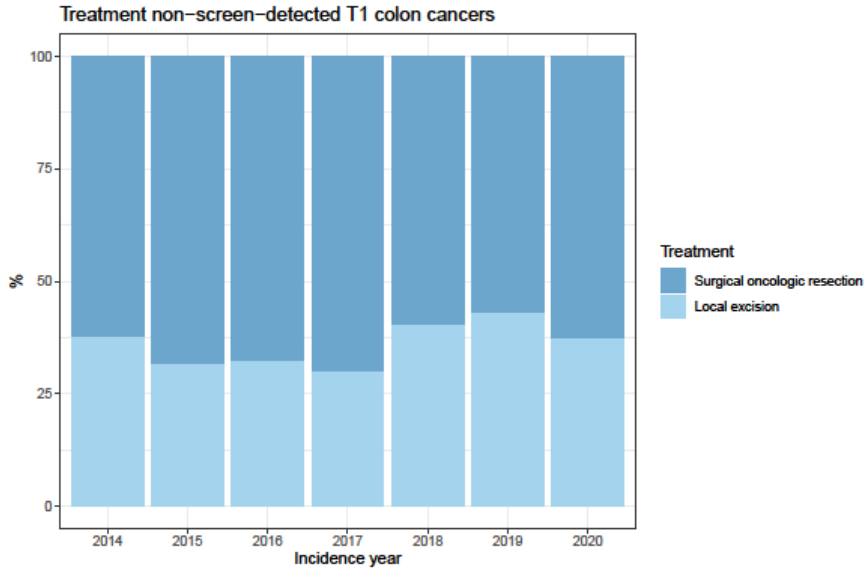
Time trends T1 colon cancers





APC 1.5%; 95%CI 1.4% – 4.4%

APC 3.2%; 95%CI 3.1% – 9.9%

No significant changes in trends - no joint points

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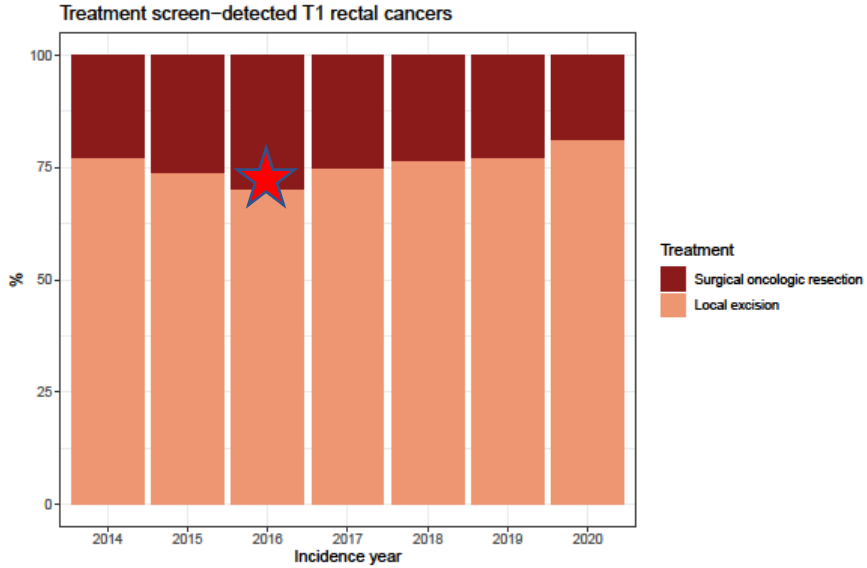
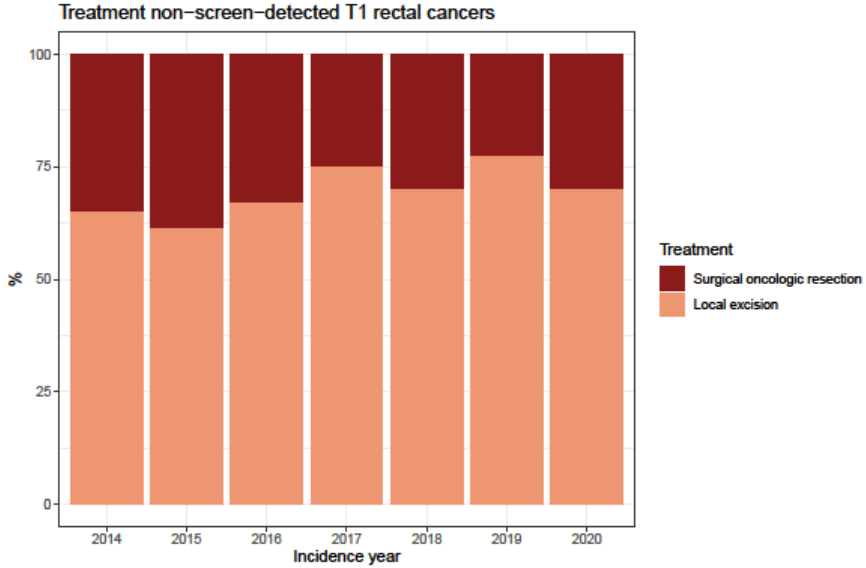
Time trends T1 rectal cancers



APC 2014-2016: **-3.9%** (95%CI -12.4% – 5.4%)
APC 2016-2020: **3.2%** (95%CI 0.7% – 5.8%)



APC 2.7%; 95%CI 0.6% – 6.2%
No significant changes in trends - no joint points

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Regression

		T1 colon cancers, OR (95% CI)	T1 rectal cancers, OR (95% CI)
Sex	Male	1	1
	Female	1.03 (0.91-1.18)	1.26 (1.03-1.55)
Age category	55-59 years	1	1
	60-64 years	1.21 (0.98-1.51)	1.01 (0.72-1.43)
	65-69 years	1.12 (0.91-1.37)	1.15 (0.83-1.59)
	70-74 years	0.92 (0.74-1.13)	0.84 (0.60-1.17)
	75-79 years	0.75 (0.60-0.94)	1.10 (0.76-1.59)
LVI	No	1	1
	Yes	3.15 (2.61-3.81)	1.55 (1.17-2.03)
Location	Left	1	N/A
	Right	4.20 (3.61-4.90)	N/A
Tumor differentiation	Grade 1	1	1
	Grade 2	1.58 (1.06-2.35)	1.32 (0.69-2.68)
	Grade 3	6.96 (3.63-12.85)	3.19 (1.26-8.43)
Detection	Screening	1	1
	No screening	2.19 (1.93-2.49)	1.29 (1.05-1.59)

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1) Less invasive treatment of screen-detected stage I CRC is partly explained by the higher rate of T1 compared with non-screen-detected stage I CRC.
2) T1 stage I CRCs were also more likely to be treated less invasively if they were detected by screening.

Thank you!

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Treatment, n (%)	Screen-detected T1 colon cancers	Non-screen-detected T1 colon cancers	p value	Screen-detected T1 rectal cancers	Non-screen-detected T1 rectal cancers	p value
Polypectomy/EMR	1638 (93.4)	1092 (82.0)	<0.0001	431 (57.4)	460 (40.5)	<0.0001
eFTR	109 (6.2)	162 (12.2)		38 (5.1)	52 (4.6)	
ESD	1 (0.1)	57 (4.3)		9 (1.2)	121 (10.7)	
EID	NA	NA		0	11 (1.0)	
TEM	5 (0.3)	17 (1.3)		272 (36.2)	488 (43.0)	
Other	0 (0)	4 (0.3)		1 (0.1)	3 (0.3)	